

Tom S. Neuman, M.D., FACP, FACPM
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April 28, 2005

Mr. John Hillsman
McGuinn Hillsman & Palefsky
535 Pacific Avenue
San Francisco, California 94133

Dear Mr. Hillsman:

At your request, I am providing you with the following report of my analysis in the case of Mr. Dennis Claypool concerning the incident that occurred on July 20, 2004. In accordance with your instructions, this report addresses my opinions and conclusions concerning whether or not Mr. Claypool would have been judged physically fit to participate in a Discover Diving course had he been evaluated preceding the events of July 20, 2004.

My qualifications to provide you with these opinions are supplemented on my c.v. which shows that almost my entire professional career has, one way or another, been associated with diving and diving medicine. My full name is Tom S. Neuman, M.D., and I am a professor of Medicine and Surgery at the University of California, San Diego Medical School in San Diego, California. I am the Associate Director of the Emergency Department at the University of California Medical Center. I am board certified by the American Board of Medical Specialties in Internal Medicine, Occupational Medicine, and Emergency Medicine. In addition, I am certified in the subspecialty of Pulmonary Diseases by the American Board of Internal Medicine, and have also been certified by the American Board of Preventive Medicine in the subspecialty of Undersea and Hyperbaric Medicine. All of my board certifications have been directed, in one fashion or another, towards my lifelong professional and personal interest in the medicine and physiology of diving.

Along with these board certifications, I am a former president of the American College of Undersea and Hyperbaric Medicine, a former president of the Undersea and Hyperbaric Medical Society (UHMS), and the former Editor-in-Chief of the peer-reviewed publication of the UHMS, *Undersea and Hyperbaric Medicine*. This is the only North American peer reviewed journal specifically devoted to the field of undersea and hyperbaric medicine. I am one of two editors for the 5th (current) edition of Bennett & Elliott's *Physiology and Medicine of Diving*, which is the leading textbook in the world on diving medicine. Additionally, I am one of only approximately 1/2 dozen physicians in the country to have been selected to write questions for the American Board of Medical Specialties certifying examination in Undersea and Hyperbaric Medicine. I am a former Naval Submarine Medical Officer, Naval Undersea Medical Officer, and Naval Diving Officer, and have retired from the U.S. Naval Reserve with the rank of Captain (the equivalent of a full Colonel in the other military services). My Naval duties included responsibility for the planning and execution of many open water dives and I was also responsible for contingency and emergency planning for those dives. Through this experience (combined

with my other professional duties) I have an expertise in determining the cause of diving accidents from both a diving and an undersea medical perspective. On the civilian side, I am a former PADI and CMAS scuba diving instructor.

My professional duties at UCSD include the instruction of students, interns, residents, fellows, and other physicians in emergency medicine, hyperbaric medicine (including treating injured scuba divers) and pulmonary medicine (which relates to my interest in diving medicine). I additionally care for patients as the director of the Hyperbaric Medicine Center at UCSD and routinely treat patients who require hyperbaric therapy. I also am clinically active in the Emergency Department and routinely see patients in that setting as well. My particular area of expertise also includes the determination of the cause of accidents and death of scuba divers and I have co-authored a book addressing these issues. In addition to my clinical duties at the Hyperbaric Medicine Center at UCSD, as the Director of the department, I have responsibility for a program that trains medical students, residents, and fellows in the field of undersea and hyperbaric medicine. Additionally, a diving medicine clinic that is predominantly responsible for determining the fitness to dive of commercial and recreational divers is part of our program.

I have been a member of the San Diego County Coroner's Committee for Investigation of Diving Fatalities since 1974, and have been involved in numerous investigations of scuba diving accidents and deaths, along with the other pathophysiologic events which may have led to or contributed to the events. Finally, I have been honored by having been asked to be a member of committees of the National Academy of Sciences (Institute of Medicine) whose task it was to create a vision for health care for exploratory class deep space missions (e.g. the trip to Mars and the colonization of the moon), advise NASA on their Longitudinal Study of Astronauts Health, to analyze the roadmap of necessary research for the trip to Mars, and to advise NASA on extreme environments. The first two of these committees have already published their reports that have been made available to Congress and have been favorably received by NASA. The third committee will publish its conclusions this fall. I have published over 30 peer reviewed original research articles, 50 abstracts, review articles and book chapters, and I have made over 120 major presentations in my career. The majority of these have been related to diving and hyperbaric medicine. For further details I refer you to my c.v. which is attached to this report.

The documents I have reviewed in order to reach my opinions are:

1. PADI Incident Form prepared by Matt Isham
2. PADI Incident Form prepared by Eric Trout
3. USCG Report by David Lamdin, Jr.
4. USCG Report by David Woolley
5. Transcript of a recorded statement of Dennis Claypool
6. Transcript of a recorded statement of Matt Isham
7. PADI Discover SCUBA Diving Participant statement of Dennis Claypool
8. Medical records of Dennis Claypool from Dr. John Lofgreen (10/2/01-10/20/04)
9. Prescription History of Dennis Claypool 1/1/00-4/14/05
10. Instructions for FRCP Rule 26.

In reviewing these materials the most important facts for me are:

1. Mr. Claypool had a family history of early death from coronary artery disease (CAD).

2. Mr. Claypool had a history of elevated blood pressure for which he intermittently and irregularly took anti-hypertensive medication (Accupril®).
3. Mr. Claypool had a history of elevated cholesterol for which he took Lipitor® on an irregular basis.
4. Mr. Claypool had an HgbA1c on 5/15/2003 of 7 %.
5. Mr. Claypool had an EKG on 4/ 2/03 that was normal.
6. Mr. Claypool had a stress EKG on 5/15/03 and he achieved a maximum heart rate of 181 (106% of predicted maximum for his age) and maximum energy expenditure of approximately 12 METS.
7. A note in his medical record dated 6/9/03 indicated Mr. Claypool was working out with a trainer 3 times a week.

Before giving you my opinions in this matter it is probably worthwhile to explain the concerns that physicians might have about making a decision whether or not an individual is physically fit to dive. Rather than simply list a number of conditions that under various circumstances might make someone unfit to dive, it is perhaps equally important to understand that there is a distinction one must make between conditions that are of concern because of their unique (or nearly unique) interaction with the diving environment and conditions that are of concern regardless of the environment. In the former category, an uncontrolled seizure disorder would be an easily understood example. Whereas a seizure occurring to someone while they were at a shopping mall might cause embarrassment and discomfort, there is no appreciable risk of death from a seizure in that setting. On the other hand, should a seizure occur while one was swimming or SCUBA diving, the real and devastating risk of drowning should be obvious. Thus, although a seizure disorder does not prevent someone from going to the mall, it is considered a contraindication to dive (and for similar reasons an individual with an uncontrolled seizure disorder is not permitted to operate a motor vehicle in the State of California). On the other hand, the risk from a heart attack is present whether one is diving, swimming, or jogging. Although heart attacks are one of the most common causes of death in male divers over the age of 45, they are also the most common cause of death in males over the age of 45 who are not diving.

In reviewing Mr. Claypool's medical records one finds several issues that warrant comment. Most importantly, Mr. Claypool has several important risk factors for the development of CAD. Those factors are his family history of early death from CAD, his hypertension, and his elevated cholesterol. Due to these risk factors it was appropriate to evaluate Mr. Claypool for occult CAD prior to giving him the "green light" to embark upon any activity requiring heavy physical exertion (High levels of physical exertion dramatically increase the risk of sudden death in the peri-exercise period of people with underlying heart disease). Within a short period of time of Mr. Claypool's evaluation for occult CAD disease (the resting and stress EKGs), he is noted to be in an exercise program with a trainer 3 times a week. These tests represent the exact sort of things that are done in order to clear an "at risk" individual for participation in strenuous activity. Although a Discover Diving experience does not represent strenuous physical activity (one would expect a workload in the neighborhood of no more than a few METS), the results of Mr. Claypool's stress EKG indicated he was fit enough to achieve an exercise level of approximately 12 METS. This is considered the maximum a sport diver would face under adverse conditions. Thus although Mr. Claypool was "at risk" for occult CAD, objective

testing appropriately performed by his physicians, indicated that he was able to perform levels of exercise well in excess of those needed to dive.

The other abnormality in Mr. Claypool's record that warrants discussion is his elevated level of hemoglobin A1c. This is a measure of an individual's "average" blood sugar. This level indicates Mr. Claypool probably had abnormal glucose tolerance (chemical diabetes mellitus). Diabetes is a risk factor for divers in one specific setting. The medications that are used to treat diabetes are designed to lower blood glucose (sugar). Should those medications lower blood glucose too much, a condition called hypoglycemia (low blood sugar) can occur. This can result in loss of consciousness and, as in the case of a seizure, it can lead to drowning. The medications that can do this are insulin and a variety of oral agents classified as sulfonyureas. Most importantly, Mr. Claypool was not on any of these medications, nor at this stage of his glucose intolerance, would it be recommended that he do anything other than embark upon an exercise and a weight reduction program just as he was doing. Thus, although Mr. Claypool had evidence of abnormal glucose tolerance, he was on no medication that created any risk of diving, and there existed no contraindication to dive.

In summary, Mr. Claypool was properly evaluated by his physicians at the time of the initiation of his diet and exercise program and he was found to be fit for involvement in strenuous physical activity. There is no question that he was physically qualified to participate in a Discover Diving experience and there is no question that had I evaluated him just prior to this incident I would have found no reason to limit his diving. Please realize however that opinions are always based upon the data at hand and should that database change I must reserve the option to revise my opinions accordingly.

As you have requested I have attached a list of the cases in which I have given testimony in the last 4 years. Additionally my fees are \$500.00 per hour for document review, meetings conversations etc. For depositions and court appearances I charge \$4000 per 8-hour day plus expenses if I must leave town and \$2000.00 per half day. I also require that a cancellation fee of \$1000.00 be paid should a deposition or a trial be canceled within 3 business days of its scheduled date. Please let me know if there is anything further that I may do.

Very truly yours,

A handwritten signature in black ink, appearing to read "Tom Neuman". The signature is fluid and cursive, with the first name "Tom" and last name "Neuman" clearly distinguishable.

Tom S. Neuman, M.D., FACP, FACPM
Professor of Medicine and Surgery
University of California, San Diego